

AMENDMENTS TO THE DRAWINGS:

The attached drawing sheet includes an amendment to FIG. 1. This sheet replaces the original sheet including FIG. 1. A marked copy of amended FIG. 1 is also enclosed.

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REMARKS

The drawings have been amended to address the objection raised by the Examiner. A replacement drawing sheet also accompanies this Amendment.

The claims have been amended to address the objections raised by the Examiner, and also to better define the claimed invention and better distinguish the claimed invention from the prior art. More particularly, independent claim 1 has been amended to stress that the oscillator operates at a frequency of not more than 100 GHz. As noted in Applicant's specification, when the frequency is not more than 100 GHz, it is not necessary to consider the influence of the frequency on conductivity. Claim 1 also has been amended to stress that the microwave is transmitted to the upper surface of the silicon wafer and the reflected waves detected are also from the upper surface of the silicon wafer. And, independent claim 5 has been amended to specify that the conductivity is computed as function of an absolute value of reflectance. It is submitted that the applied art does not teach or suggest Applicant's claimed invention as defined by the amended claims. The primary reference Boda et al. disclose a method and apparatus for measuring minority carrier lifetime in semiconductor materials. In Boda et al., a pulsed laser is required (Col. 3, lines 52-57); without it the measurement cannot be carried out. In addition, the mentioned method cannot measure an absolute value of conductivity of semiconductor materials. It can only measure a change of conductivity induced by the laser energy (Col. 2, lines 11-16).

Applicant's claimed invention does not employ a laser source, and an absolute value of conductivity can be measured directly by only using microwaves. Thus, the primary reference Boda et al. is structurally and functionally different from Applicant's claimed invention as defined by claim 1, and the several claims dependent thereon, and claim 5.

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It is not seen that the secondary reference to Bakhtiari et al. supplies the missing teachings to Boda et al. to achieve or render obvious Applicant's claim 1, or claims 2-4 which depend thereon, or claim 5. Bakhtiari et al. disclose a millimeter wave sensor for on-line inspection of thin sheet dielectrics. In Bakhtiari et al., both the amplitude and phase of the transmitted and received signals must be certainly measured (Col. 2, lines 51-57); without phase measurement the complex dielectric constant cannot be obtained (Col. 4, lines 25-28). In addition, the measurement of complex dielectric constants of dielectric materials is entirely different from the measurement of conductivity of semiconductor materials.

Applicant's claimed invention is fundamentally structurally and functionally different. Applicant's invention determines conductivity of semiconductor materials by only measuring the amplitude of a reflected microwave signal from a top surface of semiconductor wafers. The basic idea of Applicant's claimed invention is the use of a microwave to realize the conditions of surface reflection (please see Y. Ju et al., Appl. Phys. Lett. 87, 162102 (2005)) Exhibit A.

The Examiner's comments regarding the Information Disclosure Statement are noted. Actually, the Information Disclosure Statement did not include any new references. Rather, it was submitted solely to provide the Examiner with a copy of the International Preliminary Report on Patentability. Since the references were already of record, no new references were submitted. Therefore, a new Form PTO-1449 was not submitted.

Having dealt with all the objections raised by the Examiner, the Application is believed to be in order for allowance. Early and favorable action is respectfully requested.

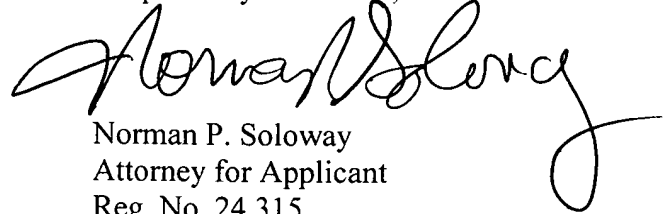
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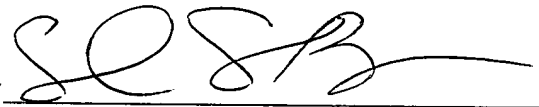
Respectfully submitted,



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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: MAIL STOP RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on March 22, 2007, at Tucson, Arizona.

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